

WHAT IS CLAIMED IS:

1. A starting clutch, comprising:
a planetary mechanism;
a first clutch for outputting a torque to an outer
5 diameter portion of said planetary mechanism;
a second clutch for outputting the torque to an
intermediate portion of said planetary mechanism; and
a lock mechanism for locking a reactive force from
an inner diameter portion of said planetary mechanism.
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2. A starting clutch according to claim 1,
wherein said planetary mechanism comprises a planetary
gear.
- 15 3. A starting clutch according to claim 1 or 2,
wherein the lock mechanism for locking the reactive
force from said inner portion comprises an one-way
clutch.
- 20 4. A starting clutch according to claim 1,
wherein a multi-plate clutch is used for said first
clutch and second clutch.
- 25 5. A starting clutch according to claim 4,
wherein a piston for fastening said first clutch and
second clutch is integrally provided.

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6. A starting clutch according to claim 4,
wherein a hub of said first clutch becomes a clutch
case of said second clutch.

5 7. A starting clutch according to claim 2,
wherein said starting clutch comprises a case for
covering said element and a clutch case for covering
said first clutch and a bearing mechanism intervenes
between said case and said clutch case.

10 8. A starting clutch according to claim 4 or 5,
wherein a bearing mechanism intervenes between the
clutch case of said first clutch and the hub.

15 9. A starting clutch according to claim 4 or 5,
wherein a bearing mechanism intervenes between the
clutch case of said second clutch and the hub.

20 10. A starting clutch according to claim 2,
wherein a bearing mechanism intervenes between said
case and the planetary gear.

25 11. A starting clutch according to claim 7,
wherein said bearing mechanism is a thrust washer, a
needle bearing or a thrust ball bearing.

12. A starting clutch according to claim 2,

further comprising an output shaft, wherein a bearing is intervened between said output shaft and said planetary gear.

5 13. A starting clutch according to claim 2, wherein the hub of said first clutch is connected to a ring gear of said planetary gear.

10 14. A starting clutch according to claim 2, wherein the hub of said second clutch is connected to a carrier of said planetary gear.

15 15. A starting clutch according to claim 1, wherein said output shaft is connected to said carrier.

20 16. A starting clutch according to claim 2, wherein a base member having a portion which becomes an inner ring of said one-way clutch is connected to a fixed element.

25 17. A starting clutch according to any one of claims 13 to 16, wherein said each member are connected by a spline fitting.

 18. A starting clutch according to claim 2, wherein an outer ring portion of said one-way clutch is formed on the sun gear or the inner periphery portion

of the member connected to the sun gear.

19. A starting clutch according to claim 1,
wherein the fixed element and the planetary gear are
5 arranged on the outer periphery side of the output
shaft and said base member and said one-way clutch are
arranged on the outer periphery of said fixed element
and, furthermore, said second clutch is arranged on the
outer periphery side of said one-way clutch and said
10 first clutch is arranged on the outer periphery side of
said second clutch, respectively and they are covered
by a case.

20. A starting clutch according to claim 1,
15 wherein the fixed element and the planetary gear are
arranged on the outer periphery side of the output
shaft and said base member and said one-way clutch are
arranged on the outer periphery of said fixed element
and, furthermore, said second clutch is arranged on the
20 outer periphery side of said planetary gear and said
first clutch is arranged on the outer periphery side of
said second clutch, respectively and they are covered
by a case.

21. A starting clutch according to claim 1,
25 further comprising a damper mechanism.

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27. A starting clutch according to claim 1,
wherein the operation of the piston for fastening the

first clutch or the second clutch is by the operating mechanism combined of a lever and a release bearing.

28. A starting clutch according to claim 1,
5 wherein the piston for fastening the first clutch or the second clutch takes a ball screw as the operating mechanism.

29. A starting clutch according to claim 1,
10 wherein the piston for fastening the first clutch or the second clutch takes the release bearing and the ball screw for pushing down the release bearing as the operating mechanism.

30. A starting clutch according to claim 1,
15 wherein the piston for fastening the first or the second clutch operates by oil pressure.

31. A starting clutch according to claim 1,
20 wherein the piston for fastening the first clutch or the second clutch operates by oil pressure supplied from a motor-operated pump.

32. A starting clutch according to claim 1,
25 wherein an oil pressure circuit including said motor-operated pump is provided independently apart from the oil pressure circuit with an engine as an oil pressure

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33. A starting clutch according to claim 1, wherein the oil pressure circuit with the oil pressure circuit including said motor-operated pump and an engine pump as an oil pressure source is included in the same oil pressure circuit and means for detecting the number of engine rotations and the oil pressure circuit comprising a valve to be regulated in an opening amount according to the number of engine rotations detected by said means.

means for detecting oil pressure generated by said engine pump; and

36. A starting clutch according to claim 5,

wherein the piston for fastening the first clutch or the second clutch operates by an electromagnet.

37. A starting clutch according to claim 1,
5 wherein an biasing means is provided for biasing a frictionally engaging element of the first clutch to such a degree that a creep torque is generated.

38. A starting clutch according to claim 37,
10 wherein biasing regulating means for regulating the biasing force of said biasing means is provided.

39. A starting clutch according to claim 37 or 38, wherein said biasing means or biasing regulating
15 means is a spring member.

40. A starting clutch according to claim 39, wherein said spring member is a Belleville spring.

41. A starting clutch according to claim 1,
20 wherein an amplified torque is outputted by the fastening of said first clutch and said one-way clutch.

42. A starting clutch according to claim 1,
25 wherein an amplified torque having 1 in a ratio of transmission is outputted by the fastening of said first clutch and said second clutch.

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43. A starting clutch according to claim 1,
wherein the operating mechanism of the first or the
second clutch is arranged on the outer periphery side
of said fixed element.

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44. A starting clutch according to claim 1,
wherein, when the operating mechanism is completely ON,
the first clutch and the second clutch fasten together
and, when the operating mechanism is completely OFF,
10 the first clutch and the second clutch are released.

45. A starting clutch according to claim 1,
wherein the first clutch fastens or slidably moves in a
half operating state intermediate between said
15 completely ON and completely OFF.

46. A starting clutch according to claim 1,
wherein the second clutch slidably moves or is released
in said half operating state.

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47. A starting clutch according to claim 1,
wherein a coupled driving rotational element is
arranged on an outer periphery of said fixed element
and, furthermore, the piston is arranged on the outer
25 periphery.

48. A starting clutch according to claim 47,

wherein a cylinder and an oil chamber of said cylinder are provided on said coupled driving rotational element.

5 49. A starting clutch according to claim 47 or 48, wherein the piston is separated from a frictionally engaging element by the operation of said cylinder.

10 50. A starting clutch according to claim 47, wherein a thrust member for fastening the first clutch and the second clutch by thrusting said piston is provided.

15 51. A starting clutch according to claim 50, wherein said thrust member is a spring member.

20 52. A starting clutch according to claim 51, wherein said spring member intervenes between a support plate supported on an inner periphery of the clutch case of the first clutch by a snap ring and the piston.

25 53. A starting clutch according to claim 47, wherein an oil passage from said fixed element to said oil chamber through said coupled driving rotational element is provided.

54. A starting clutch according to claim 53,

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wherein an oil passage from said output shaft to said oil chamber through said fixed element and said coupled driving rotational element is provided.

5 55. A starting clutch according to claim 47,
wherein an outer periphery side of said coupled driving rotational element is closed with an oil seal.

10 56. A starting clutch according to claim 47,
wherein the outer periphery of said fixed element is supported by a bearing.

15 57. A starting clutch according to claim 47,
wherein the outer periphery side of said fixed element is supported by a seal bearing.

20 58. A starting clutch according to claim 1,
wherein lubricant is supplied from the output shaft to the first clutch, the second clutch, the one-way clutch, the planetary gear or the like.

25 59. A starting clutch according to claim 58,
wherein a lubricant oil supply hole is provided on said output shaft.

 60. A starting clutch according to claim 1,
wherein the lubricant oil supply hole is provided in

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said fixed element.

61. A starting clutch according to claim 59 or
60, wherein a lubricant oil passage which communicates
5 with said output shaft from said fixed element is
provided.

62. A starting clutch according to claim 1,
wherein lubricant is supplied from a gap between said
10 output shaft and said fixed element.

63. A starting clutch according to claim 1,
wherein the inside of the clutch case is immersed in
oil.
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64. A starting clutch according to claim 47,
wherein the first and the second clutches are fastened
when the operating mechanism is completely OFF, and the
first and the second clutches are released when the
20 operating mechanism is ON.

65. A starting clutch according to claim 47,
wherein only the first clutch fastens or slidably moves
when the operating mechanism is in a half operating
25 state.

66. A starting clutch according to claim 45,

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wherein a creep is generated by said first or the second clutch slidably moving.

67. A control method of a starting clutch,
5 comprising:
a planetary mechanism;
a first clutch for outputting a torque to an outer
diameter portion of said planetary mechanism;
a second clutch for outputting the torque to an
10 intermediate portion of said planetary mechanism; and
a lock mechanism for locking a reactive force from
an inner diameter portion of said planetary mechanism,
wherein an amplified torque is outputted by the
fastening of said first clutch and said one-way clutch.

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68. A control method of a starting clutch
according to claim 67, wherein a torque having 1 in a
ratio of transmission is outputted by the fastening of
said first clutch and said second clutch.

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69. A control method of a starting clutch
according to claim 67 or 68, wherein, when the
operating mechanism is completely ON, the first clutch
and the second clutch are fastened together and, when
25 the operating mechanism is completely OFF, the first
clutch and the second clutch are released.

70. A control method of a starting clutch according to claim 69, wherein said first clutch is fastened or slidably moved in a half operating state intermediate between said completely ON and completely
5 OFF.

71. A control method of a starting clutch according to claim 69, wherein said second clutch is fastened or slidably moved in a half operating state
10 intermediate between said completely ON and completely OFF.

72. A control method of a starting clutch according to claim 67 or 68, wherein, when the
15 operating mechanism is completely OFF, the first and the second clutches are fastened and, when the operating mechanism is completely ON, the first and the second clutches are released.

73. A control method of a starting clutch according to claim 72, wherein said operating mechanism fastens or slidably moves the first clutch only in a
20 half operating state intermediate between said completely ON and completely OFF.

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74. A control method of a starting clutch according to claim 70, wherein a creep is generated by said first clutch slidably moving.

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